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The species of the African genus *Mimocellus* Wasmann (Coleoptera: Tenebrionidae), with descriptions of three new species[1]

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Abstract

The species of the African genus *Mimocellus* Wasmann, 1904 (Coleoptera: Tenebrionidae, Lupropini) are revised. *Mimocellus bremeri* **n. sp.** (Kenya), *Mimocellus girardi* **n. sp.** (Ivory Coast) and *Mimocellus wasmanni* **n. sp.** (Congo) are added to the as yet known four species. The diagnostic characters of all species are listed and figured, a species key is provided and all faunistic data are summarized in a map. The species live in the nests of termites. The external morphology suggests that at least the adult beetles do not have a close association with the termites themselves, but are probably associated only with the cultivated fungi or accumulated debris in the nests of the termites.
Keywords: Coleoptera, Tenebrionidae, Lupropini, *Mimocellus*, Africa, new species, termites.

Zusammenfassung

Die Arten der afrikanischen Gattung *Mimocellus* Wasmann, 1904 (Coleoptera: Tenebrionidae, Lupropini) werden revidiert. *Mimocellus bremeri* **n. sp.** (Kenya), *Mimocellus girardi* **n. sp.** (Elfenbeinküste) und *Mimocellus wasmanni* **n. sp.** (Congo) werden zu den bislang vier bekannten Arten hinzugefügt. Die diagnostischen Merkmale aller Arten werden aufgelistet und abgebildet, ein Bestimmungsschlüssel für die Arten wird erstellt, und alle faunistischen Daten werden in einer Karte zusammengefasst. Die Arten leben in den Nestern von Termiten. Auf Grund der äußeren Morphologie haben zumindest die erwachsenen Käfer keine nähere Assoziation mit den Termiten selbst, sondern leben wahrscheinlich nur von den gezüchteten Pilzen oder angehäuften Abfällen innerhalb der Termitennester.

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[1] Contributions to Tenebrionidae, no. 50. – For no. 49 see Fauna of Arabia 21 (2005).

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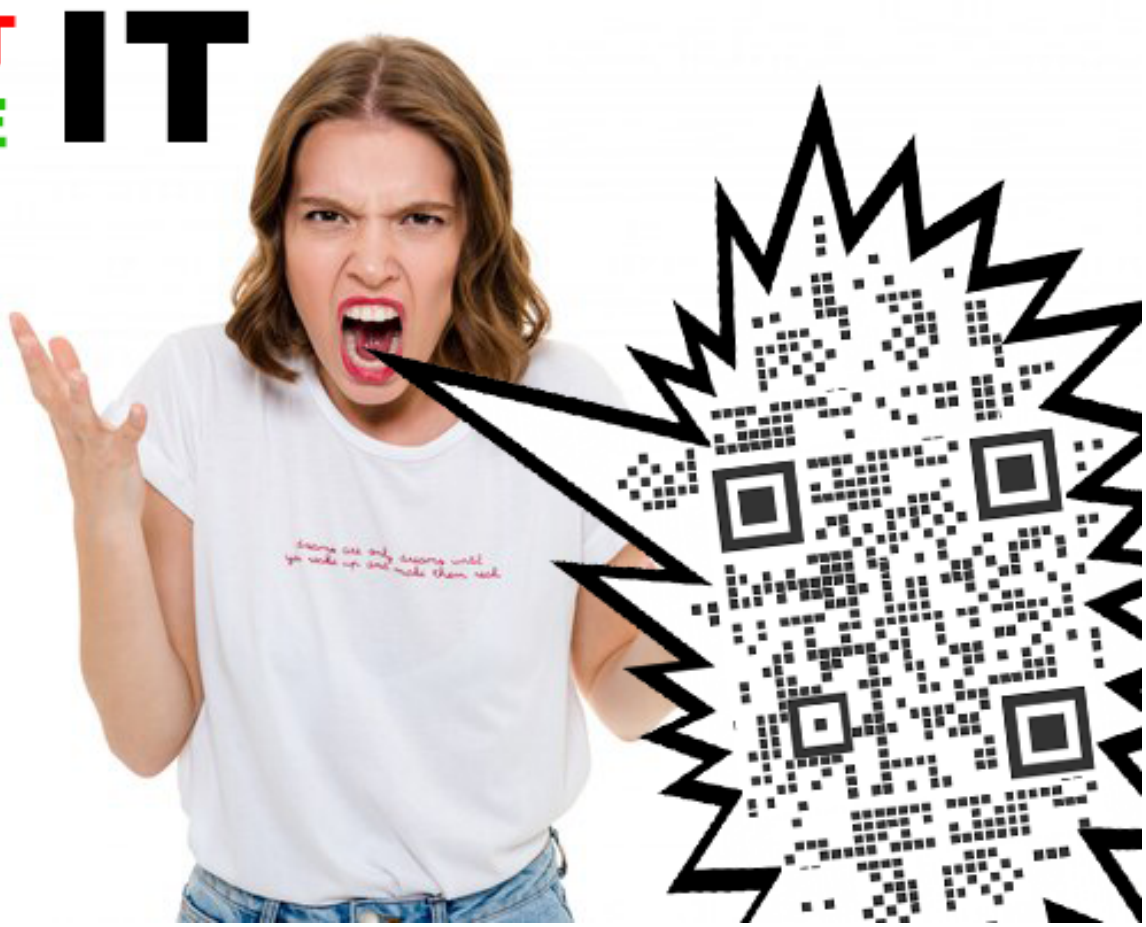

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1 Introduction

The genus *Mimocellus* Wasmann, 1904 (type species *Mimocellus trechoides* Wasmann, 1904) within the tenebrionid tribe Lupropini contains as yet four species, distributed exclusively in Africa south of the Sahara (WASMANN 1904, ARDOIN 1969). The species are relatively rare in the collections, and besides the original genus diagnosis and the descriptions of the species as yet no further data are published. Initiated by new findings of this genus in Kenya and South Africa, three new species are described in this paper, the diagnostic characters of all species are listed and figured, a species key is provided and all faunistic data are summarized in a map.

The species of *Mimocellus* are said to be termitophilous and have been found in the nests of termites (WASMANN 1904). However, from the external morphology the beetles do not have a close association with the termites themselves (no cuticular armament, no excavations for appendages, no trichomes), but are associated probably only with the cultivated fungi or accumulated debris in the nests of the termites. Termites are species-rich and have a high ecological plasticity in Africa (see for example VOHLAND & DECKERT 2005). The striking termite mounds in the African savannahs are built by species of *Macrotermes* Holmgren, 1890. At least *Mimocellus decellei* and *Mimocellus girardi* n. sp. have been collected in association with the termite *Macrotermes bellicosus*, according to the labels. However, it is unknown if this association holds true for all species of *Mimocellus* and/or to which other taxa of termites the adult beetles or (?only) their larvae have a closer association. All species of *Mimocellus* have fully developed wings and are generally collected at light, thus they leave the termite nests during night by flight, probably for dispersal.

Acronyms of depositories

HNHM	Hungarian Natural History Museum, Budapest
MNHUB	Museum für Naturkunde der Humboldt-Universität, Berlin
MRAC	Musée Royal de l'Afrique Centrale, Tervuren
SMNS	Staatliches Museum für Naturkunde, Stuttgart
TMSA	Transvaal Museum, Pretoria
ZSM	Zoologische Staatssammlung (coll. BREMER), München

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Cordial thanks are due to the collection manager RUTH MÜLLER (Pretoria) for her hospitality during my stays in the Transvaal Museum and for various supports during joint field work in South Africa and Namibia. Dr. MARTIN BAEHR (München), BERND JÄGER (Berlin), Dr. OTTÓ MERKL (Budapest) and Dr. MARC DE MEYER (Tervuren) kindly loaned specimens from the collections under their care.

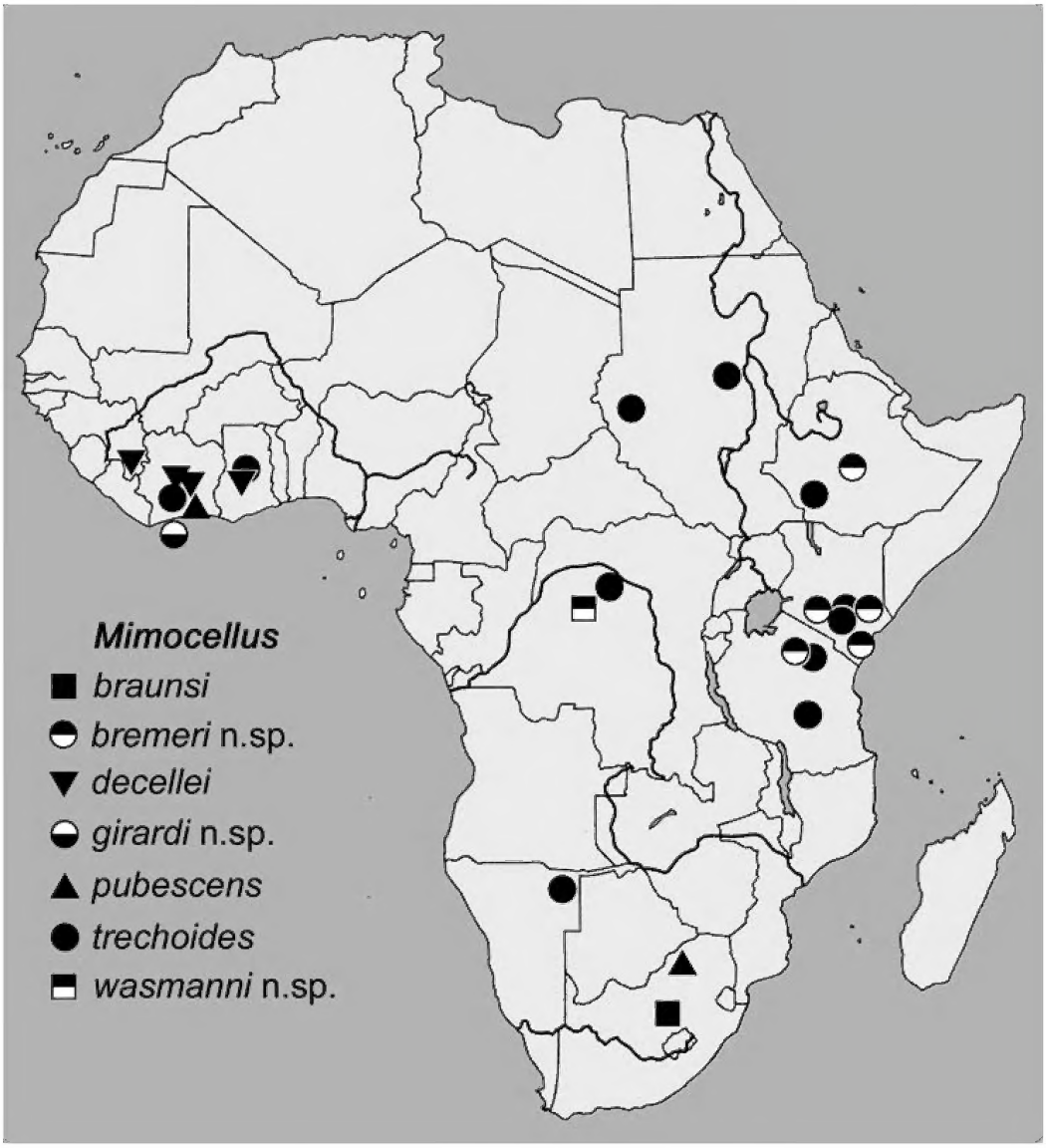


Fig. 1. Collecting plots of *Mimocellus* species in Africa; a few localities could not exactly be localized and are included only roughly in the map.

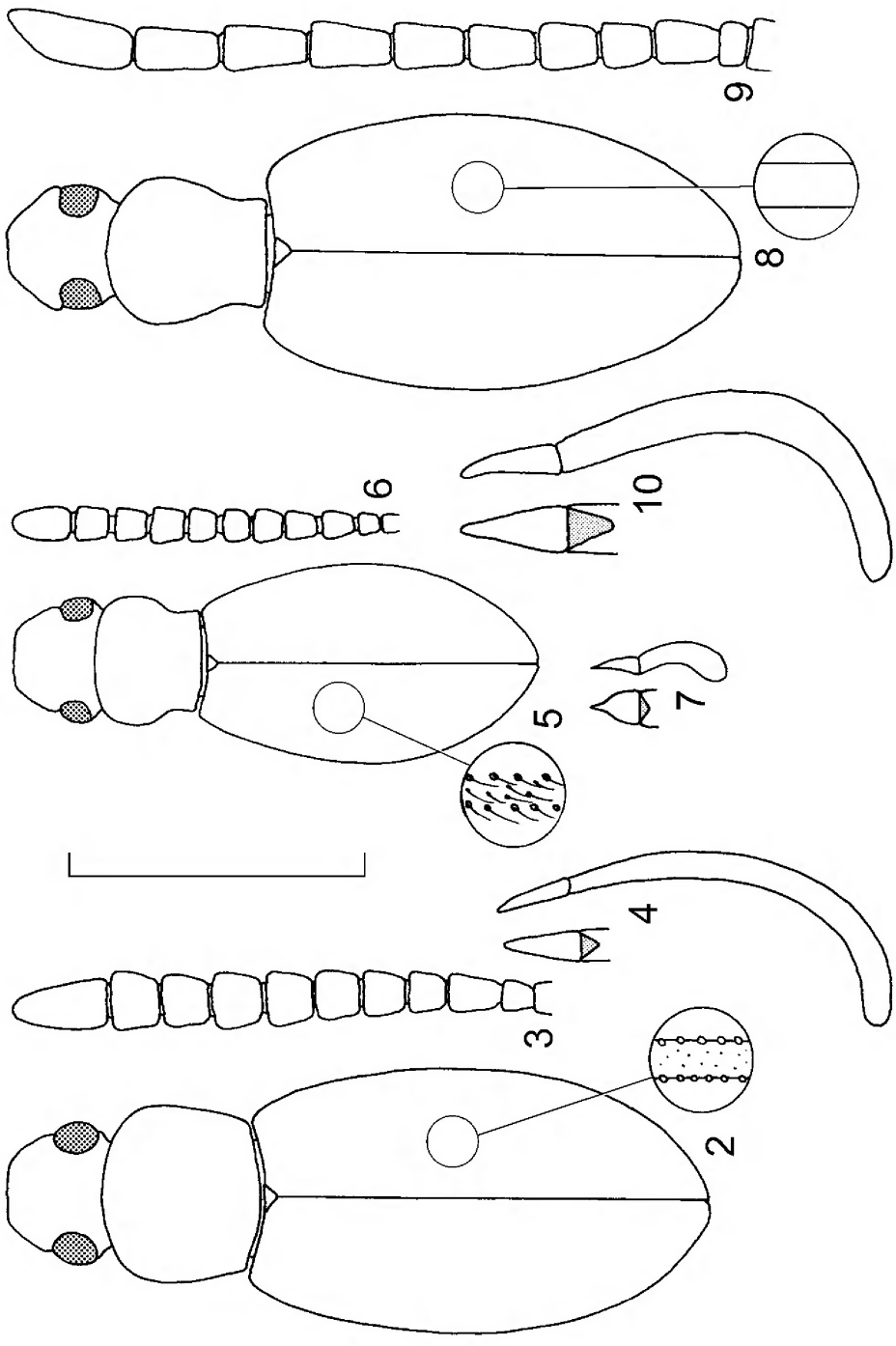
2 The species

2.1 *Mimocellus braunsi* Wasmann, 1904 (Figs. 1–4)

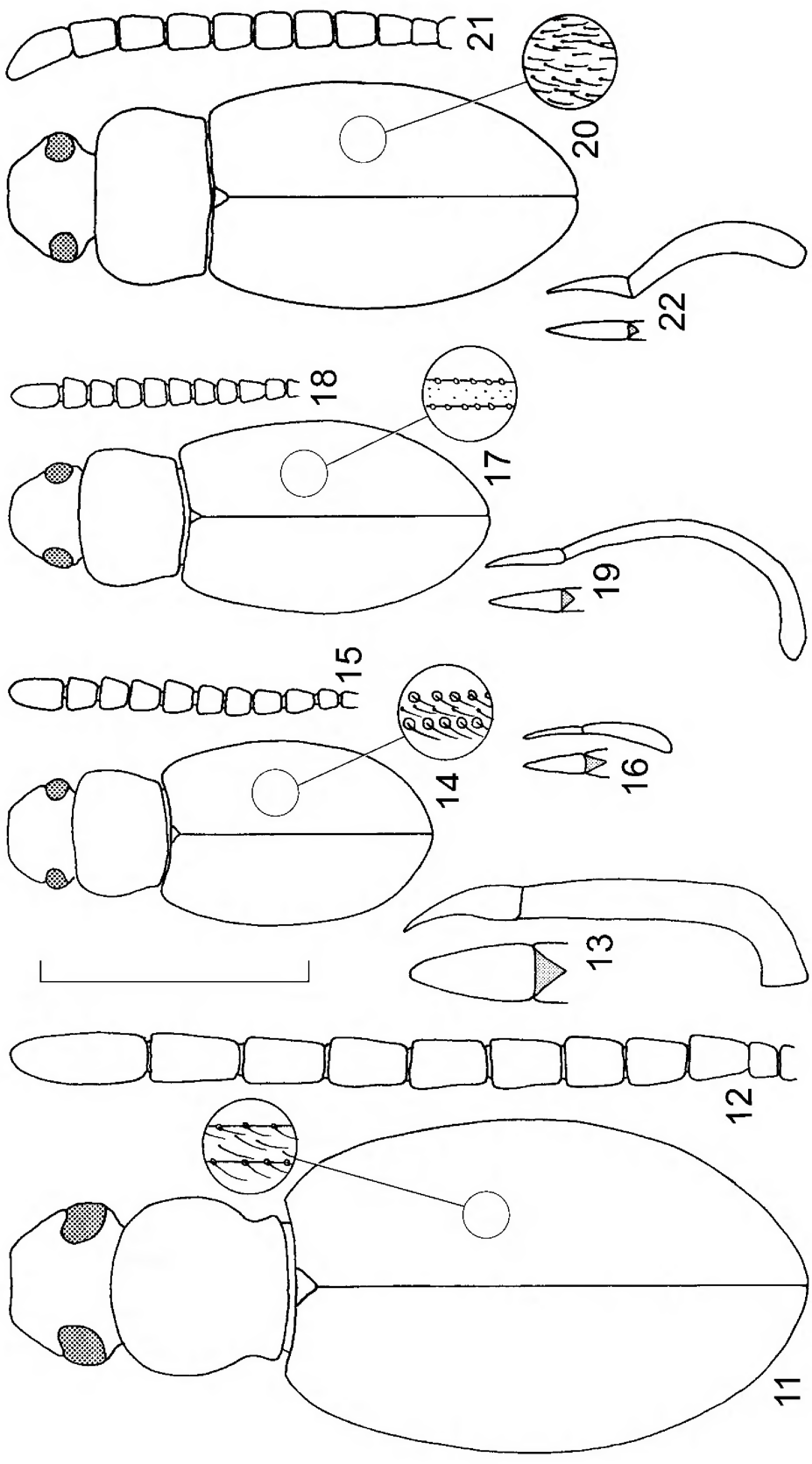
Studied type-material: South Africa, Orange Free State, Bothaville, 15.II.1898, leg. BRAUNS, ♂ holotype TMSA.

New material: None.

Diagnostic characters: Body length 4.9 mm. Dorsal side of head, pronotum and elytra shining and glabrous. Shape of antennomeres subquadrate, see Fig. 3. Shape of pronotum and elytra see Fig. 2. Propleures glabrous. Punctures of head and



Figs. 2–10. Body shape, antenna, section of elytral structure, and aedeagus of *Mimocellus* species. – **2–4**. *M. braunsi*, ♂ holotype, TMSA. **5–7**. *M. bremeri* n. sp., ♂ holotype, HNHM. **8–10**. *M. decellei*, ♂ non-type Ghana, TMSA. – Scale line: 1.0 mm (antenna, aedeagus), 2.0 mm (body shape).



Figs. 11–22. Body shape, antenna, section of elytral structure, and aedeagus of *Mimocellus* species. – **11–13**. *M. girardi* n. sp., ♂ holotype, ZSM. **14–16**. *M. pubescens*, ♂ holotype, MRAC. **17–19**. *M. trechoides*, ♂ non-type Ghana, SMNS. **20–22**. *M. wasmanni* n. sp., ♂ holotype, HNHM. – Scale line: 1.0 mm (antenna, aedeagus), 2.0 mm (body shape).

pronotum of similar size, punctation on head distinctly denser than on pronotum. Elytral stripes with visible punctures, elytral intervals slightly convex and with somewhat smaller punctures than on pronotum. Aedeagus see Fig. 4.

Distribution: South Africa.

2.2 *Mimocellus bremeri* **n. sp.** (Figs. 1, 5–7)

Holotype (♂): S Kenya, Tsawo West National Park, near Kitani Lodge, 17.IV.1988, leg. A. Vojnits (Hung. Sci. Africa Exp. "Teleki"), HNHM.

Paratypes: S Kenya, Tsawo [labelled Tsavo] East National Park, Buchuma, 28.XI.1997, leg. M. Snižek, 1 ♀ ZSM. – Tanzania [labelled as Tanganyika], Usa River, 3900 ft., 15.IX.–25.XI.1965, leg. J. Szunyoghy, 1 ex. HNHM (*pubescens* det. Kaszab). – Ethiopia, Sudere (125 km SE Addis Abeba), 16.XI.1980, leg. Demeter, 1 ex. SMNS. – Kenya [labelled as Brit. Ost-Afrika], Taru, Mombasa, without date, 1 ex. HNHM (*pubescens* det. Kaszab). – Kenya [labelled as Africa or.], Ikutha, without date, 1 ex. HNHM (*pubescens* det. Kaszab).

Etymology: Named in honour of Prof. Dr. Hans J. Bremer (Melle), who recognized this species from his collection as new.

Description: Body length 3.0–3.6 mm, unicoloured ferrugineous. Dorsal side of head, pronotum and elytra shining and with long and dense setation. Shape of antennomeres subquadrate, see Fig. 6. Pronotum (Fig. 5) cordiform with the lateral margin distinctly excavated before the hind angles, propleures glabrous. Punctures of head and anterior part of pronotum of similar size, punctures of posterior part of pronotum distinctly bigger, punctation on head slightly denser than on pronotum. Elytra with irregular punctural rows without stripes, punctures of elytral intervals only slightly smaller. Ventral side and legs without specific peculiarities. Aedeagus see Fig. 7.

Diagnosis: *Mimocellus bremeri* n. sp. shares with *M. pubescens* the similar body size, the subquadrate shape of the antennomeres and the dorsal setation on head, pronotum and elytra, but can be separated by the cordiform pronotum with the lateral margin distinctly excavated before the hind angles (Figs. 5, 14), by the elytral punctation (see species key), and by a completely different aedeagus (Figs. 7, 16). See also *Mimocellus wasmanni* n. sp.

2.3 *Mimocellus decellei* Ardoin, 1969 (Figs. 1, 8–10)

Studied type-material: Ivory Coast, Abengourou, 16.VIII.1961, leg. J. Decelle, ♀ holotype MRAC.

New material: Ghana, Ashanti Region, Kwadaso, 320 m, 27.II.–12.III.1969, leg. S. Endrödy-Younga, 30 ex. HNHM, 3 ex. TMSA. – Ivory Coast, Ayérémou II, 27.XI.1986, leg. C. Girard, 1 ex. ZSM, 1 ex. SMNS. – Guinea, Mt. Nimba, Gbakoré, XII.1983, leg. C. Girard & M. Lamotte, 3 ex. ZSM.

Diagnostic characters: Body length 5.1–5.5 mm. Dorsal side of head, pronotum and elytra dull shagreened and glabrous. Shape of antennomeres elongate, see Fig. 9. Shape of pronotum and elytra see Fig. 8. Propleures with distinct setation. Punctures of head bigger than punctures of pronotum, punctation on head distinctly denser than on pronotum. Elytra with stripes, punctures small and not surpassing the stripes, elytral intervals slightly convex and with indistinct fine punctation. Aedeagus see Fig. 10.

Distribution: Ivory Coast (type locality); Guinea, Ghana (new records).

2.4 *Mimocellus girardi* **n. sp.** (Figs. 1, 11–13)

Holotype (♂): Ivory Coast, Ayérémou II, 27.XI.1986, leg. C. GIRARD, ZSM.

Etymology: Named in honour of Dr. CLAUDE GIRARD (Paris), collector of the holotype and specialist of termitophilous tenebrionids in Africa.

Description: Body length 5.8 mm, unicoloured ferrugineous. Dorsal side of head, pronotum and elytra shining and with long and dense setation. Shape of antennomeres elongate, see Fig. 12. Pronotum (Fig. 11) cordiform with the lateral margin distinctly excavated before the hind angles, propleures with setation. Punctures of head bigger than punctures of pronotum, punctation on head distinctly denser than on pronotum. Elytral stripes with visible punctures, elytral intervals slightly convex and with similar punctation as on head. Ventral side and legs without specific peculiarities. Aedeagus see Fig. 13.

Diagnosis: *Mimocellus girardi* n. sp. shares with *M. decellei* the similar body size and the elongate shape of the antennomeres, but can be recognized by the setation on head, pronotum and elytra, by a different elytral structure, and by a different shape of the aedeagus (Figs. 10, 13).

2.5 *Mimocellus pubescens* Ardoin, 1969 (Figs. 1, 14–16)

Studied type-material: Ivory Coast, Bingerville, XII.1961, leg. J. DECELLE, ♂ holotype MRAC.

New material: Ivory Coast, Ayérémou II, 27.XI.1986, leg. C. GIRARD, 1 ex. ZSM. – South Africa, Northern Province, Thabaphaswa Farm near Potgietersrus, 13.–14.XII.2003, leg. W. SCHAWALLER, 1 ♀ SMNS.

Diagnostic characters: Body length 2.5–3.8 mm. Dorsal side of head, pronotum and elytra shining and with long and dense setation. Shape of antennomeres subquadrate, see Fig. 15. Shape of pronotum and elytra see Fig. 14. Propleures with long setation. Punctures of head and pronotum of similar size, punctation on head not denser than on pronotum. Elytra with rows of big punctures without stripes, elytral intervals slightly convex and with smaller punctures than on pronotum. Aedeagus see Fig. 16.

Remarks: The newly collected specimen from South Africa, unfortunately a female, shows no distinct differences in comparison with the ♂ holotype from the Ivory Coast apart from a somewhat bigger body size (♂ 2.5–3.2 mm, ♀ 3.8 mm). Thus I hope not to fail in assigning this finding to *M. pubescens* in spite of the widely disjunct localities.

Distribution: Ivory Coast (type locality); northern South Africa (new record).

2.6 *Mimocellus trechoides* Wasmann, 1904 (Figs. 1, 17–19)

Studied type-material: None, depository unknown.

New material: Ivory Coast, 10 km S N'Douci, 11.XII.1989, leg. C. GIRARD, 1 ex. ZSM. – Ghana, Ashanti Region, Kwadaso, 320 m, 3.–4.III.1969, leg. S. ENDRÖDY-YOUNGA, 9 ex. HNHM, 2 ex. TMSA, 1 ex. SMNS. – SW Ethiopia, Gamu-Gofa, Konso, 1610 m, 17.–23.II.1960, leg. W. RICHTER, 1 ex. SMNS. – Congo [labelled as Congo Belge], P.N.G., Mission H. de SAEGER, 29.V.1952, leg. J. VERSCHUREN, 2 ex. ZSM. – NE Namibia, Bushmanland, Klein Dobe, 19.–21.II.1992, leg. M. UHLIG, 1 ex. MNHUB (*trechoides* det. BREMER). – Kenya [labelled as Brit. Ost-Afrika], Kibwezi, 1907–1908, leg. G. SCHEFFLER, 3 ex. MNHUB. – Kenya [labelled as Afr. or.], Ikutha, without date, 3 ex. MNHUB, 2 ex. HNHM. – Tanzania [labelled as Dt. Ost-Afrika], Gulwe, 18.–26.V.1926, leg. S. G. BRANDES, 1 ex. MNHUB. – Tanzania [labelled as Tanganyika], Usa River, 3900 ft., 15.XI.–31.XII.1969, leg. J. SZUNYOGHY,

2 ex. HNHM. – Tanzania [labelled as Tanganyika], 5 miles to Lake Sereri Eshore, 3150 ft., 11.–27.VIII.1965, leg. J. SZUNYOGHY, 1 ex. HNHM. – Sudan, W Darfur Prov., Disa, without date, leg. ALLISON, 2 ex. HNHM.

Diagnostic characters: Body length 2.8–3.8 mm. Dorsal side of head, pronotum and elytra shining and glabrous. Shape of antennomeres subquadrate, see Fig. 18. Shape of pronotum and elytra see Fig. 17. Propleures glabrous. Punctures of head and pronotum of similar size, punctation on head slightly denser than on pronotum. Elytral stripes with visible punctures, elytral intervals slightly convex and with smaller punctures than on pronotum. Aedeagus see Fig. 19.

Remarks: The record from Namibia was already mentioned and figured by FERRER (2004: 209) without definite species-identification, however in contrary to the listed 2 specimens only 1 specimen is housed in the Berlin Museum (JÄGER in litt.).

Distribution: Sudan (type locality); Ivory Coast, Ghana, Ethiopia, Kenya, Tanzania, Congo, Namibia (new records).

2.7 *Mimocellus wasmanni* n. sp. (Figs. 1, 20–22)

Holotype (♂): Congo [labelled as Congo Belge], P.N.G., Mission H. de SAEGER, 29.V.1952, leg. J. VERSCHUREN, HNHM (*Mimocellus* n. sp. det. BREMER).

Etymology: Named in honour of ERICH WASMANN (1859–1931), outstanding specialist of myrmecophilous and termitophilous Coleoptera and author of the genus *Mimocellus*.

Description: Body length 4.0 mm, unicoloured ferrugineous. Dorsal side of head, pronotum and elytra shining and with long and dense setation. Shape of antennomeres subquadrate, see Fig. 21. Pronotum (Fig. 20) cordiform with the lateral margin slightly excavated before the hind angles, propleures with similar setation than on disc. Punctures of head and anterior part of pronotum of similar size, punctures of posterior part of pronotum distinctly bigger, punctation on head slightly denser than on pronotum. Elytra with nearly invisible punctural rows and without stripes, punctures of elytral intervals of similar size. Ventral side and legs without specific peculiarities. Aedeagus see Fig. 22.

Diagnosis: *Mimocellus wasmanni* n. sp. shares with *M. bremeri* n. sp. and *M. pubescens* the dense dorsal setation and the subquadrate antennomeres, but can be recognized by the different shape of the pronotum (compare Figs. 5, 14, 20) and by the different shape of the aedeagus (compare Figs. 7, 16, 22). Additionally, in *M. pubescens* and *M. bremeri* n. sp. the elytral punctural rows are distinctly separated from the intervals, whereas in *M. wasmanni* n. sp. the punctation of the elytral rows and the elytral intervals is similar; in other words: the elytral punctation is not distinctly separated in rows and intervals.

3 Key to the species

1 Dorsal surface of head, pronotum and elytra with long and dense setation 2
– Dorsal surface glabrous 5
2 Shape of the antennomeres elongate (Fig. 12), body length 5.8 mm ..... ***M. girardi* n. sp.**
– Shape of the antennomeres subquadrate (Figs. 6, 15, 21), body length 2.5–4.0 mm 3
3 Pronotum subquadrate (Fig. 14), elytra with distinct and regular rows of punctures without stripes, punctures of elytral intervals distinctly smaller than punctures of rows ..... ***M. pubescens***
– Pronotum cordiform, lateral margin distinctly (Fig. 5) or at least slightly (Fig. 20) excavated before the hind angles, elytra with irregular rows of punctures without stripes, punctures of elytral intervals only slightly smaller or even of similar size than punctures of rows 4

4 Lateral margin of pronotum distinctly excavated before the hind angles (Fig. 5), body length 3.0–3.6 mm, aedeagus see Fig. 7 ..... ***M. bremeri* n. sp.**
– Lateral margin of pronotum slightly excavated before the hind angles (Fig. 20), body length 4.0 mm, aedeagus see Fig. 22 ..... ***M. wasmanni* n. sp.**
5 Shape of the antennomeres elongate (Fig. 9), elytral stripes with small punctures not surpassing the stripes, body length 5.1–5.5 mm ..... ***M. decellei***
– Shape of the antennomeres subquadrate (Figs. 3, 18), elytral stripes with wider punctures surpassing the stripes, body length 2.8–4.9 mm **6**
6 Body length 2.8–3.8 mm, pronotum cordiform (Fig. 17) ..... ***M. trechoides***
– Body length 4.9 mm, pronotum trapezoid (Fig. 2) ..... ***M. braunsi***

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